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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,590	01/23/2007	Motoyasu Kimura	892_034	3563
25191	7590	08/15/2008		
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068			EXAMINER MCCALISTER, WILLIAM M	
			ART UNIT 3753	PAPER NUMBER
			MAIL DATE 08/15/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/579,590	<b>Applicant(s)</b> KIMURA ET AL.	
	<b>Examiner</b> WILLIAM MCCALISTER	<b>Art Unit</b> 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-16 is/are rejected.
- 7) ☐ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/17/2006</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 4, 9, and 11-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Isaacson (US Patent 6,119,720).

Regarding claim 1, Isaacson discloses a flow control device, comprising:

a flush valve device (200) having a control valve (223) in a path leading from an inflow opening to an outflow opening; a detection portion (see col. 5 line 65 to col. 6 line 5) for outputting the presence (and by implication the absence) of a flow of a fluid flowing from the inflow opening to the outflow opening by converting to an electric signal; and a control device (203) for controlling opening and closing of the control valve based on the output of the detection portion,

characterized in that: the flow control device further comprises an electricity generating device (245, 247, described at col. 7 lines 38-45) for generating electricity by using the flow of the fluid as power; and at least a part of the electricity obtained in the electricity generating device is supplied to the control device (see col. 7 lines 38-45).

It is noted that, despite the typographical errors in FIG 2 (the element which is labeled 207 should be labeled 205, and the number 207 should point to the solenoid attached to plunger 243), the descriptions (found at: col. 5 line 65 to col. 6 line 5; and col. 7 lines 38-45) make clear that one of skill would have recognized that Isaacson's device comprises both a detection portion and an electricity generating device.

Regarding claim 3, Isaacson discloses the control device to comprise a water leakage monitoring circuit (105) which is capable of monitoring a water leakage in the path leading to the outflow opening.

Regarding claim 4, Isaacson discloses:

the control device to comprise: a flow rate calculating circuit (202, 206) for calculating a flow rate of a fluid, which is discharged through the outflow opening, based on the electric signal obtained in the detection portion (see col. 6 lines 12-27); and a discharge control circuit (performed by 203) for closing the control valve in response to information indicating that the flow rate reaches a discharge stop flow rate at which a discharge should be stopped (col. 6 lines 28-50); and

the water leakage monitoring circuit judges an occurrence of the water leakage in response to information indicating that a flow of a fluid is continuously detected in the detection portion after the flow rate reaches the discharge stop flow rate (this would necessarily occur because the control device does not shut off, and would therefore continue to count the pulses despite the valve being closed).

Regarding claim 9, Isaacson discloses the detection portion to comprise a rotating impeller (213), which is arranged in the path leading from the inflow opening to the outflow opening, for rotating when receiving the flow of the fluid; and the electricity generating device comprises an electricity generating body (245) for rotating with the rotating impeller.

Regarding claims 11 and 12, Isaacson discloses the flow control device to comprise a flow rate calculating portion (202, 206) capable of calculating a flow rate of a fluid, which is discharged through the outflow opening, based on an electric signal obtained in the detection portion; the control device controls opening and closing of the control valve based on whether or not the flow rate calculated in the flow rate calculating portion reaches a discharge stop flow rate at which a discharge should be stopped (see col. 6 lines 12-27); and the flow control device comprises an output portion and display device (400) for outputting the flow rate calculated in the flow rate calculating portion to an outside of the control portion (i.e. – to the LCD, during steps 554 and 556) which is capable of displaying the outputted flow rate.

Regarding claim 13, Isaacson discloses a storage portion (204) capable of storing the flow rate that is outputted to the output portion, and a time on which a discharge involving the output is performed are stored in correspondence with each other (col. 6 lines 14-24, both characteristics are implicit in the recordation of pulse duration).

Regarding claim 14, Isaacson discloses the output portion to sum up and output flow rates (during creation of "NEW COUNT", see col. 9 lines 7-10) of a fluid discharged within a unit period (during that particular flow interval).

Regarding claim 15, Isaacson discloses a flow rate difference calculating circuit for calculating over and short of the calculated flow rate by comparing the calculated flow rate with a predetermined target discharge rate (function of circuit 203 described at col. 6 lines 28-31); and an adjustment circuit (208) for adjusting a flow rate to be discharged, based on the flow rate calculated in the flow rate difference calculating circuit (via activation of solenoid 207).

Regarding claim 16, Isaacson discloses the output portion to comprise a signal portion (LCD) capable of informing that there are over and short in a flow rate of a discharged fluid when there are over and short.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isaacson as applied to claim 1 above.

Regarding claim 2, Isaacson discloses several means for storing the charge produced by the electricity generator (see col. 7 lines 28-37), but does not explicitly disclose a capacitor for doing so. However, it would have been obvious to one of ordinary skill in the art at the time of invention to use a capacitor rather than a battery to store the electricity, since it was known in the art at the time of invention that capacitors are also capable of performing this function.

Regarding claim 10, Isaacson discloses the invention as claimed notwithstanding a plurality of flush valve devices. It would have been obvious to one of ordinary skill in the art at the time of invention to provide a plurality of Isaacson's flush valves since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 70.10. For instance, this would occur during installation of Isaacson's device at several residences

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along a common main water supply. The result would have been characterized in that: the flow control device comprises a plurality of flush valve devices; the flush valve devices include inflow openings connected to a common water supply pipe; and the electricity generating device is provided on the water supply pipe side.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isaacson as applied to claim 1 above, and further in view of Chance (US Patent Application Publication 2003/0201892).

Isaacson discloses the invention as claimed with exception of the theft prevention circuit. However, Chance teaches that it was known in the art at the time of invention to utilize a conductive material to form a flow conducting path in order to complete a circuit for deterring the theft thereof (see abstract). It would have been obvious to one of ordinary skill in the art at the time of invention to construct Isaacson's flow conducting housing from a conductive material, and to incorporate a circuit therewith as taught by Chance, to prevent theft of Isaacson's valve.

#### ***Allowable Subject Matter***

7. Claims 5, 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



8. The following is a statement of reasons for the indication of allowable subject matter: no prior art teaches, alone or in combination, comparison of the state of an electricity generator with the output of a flow rate sensor.

***Conclusion***

9. The following is prior art made of record and not relied upon, but which is considered pertinent to applicant's disclosure: US Patent 4,007,755 which discloses a fluid system that compares flow rates of different streams.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM MCCALISTER whose telephone number is (571)270-1869. The examiner can normally be reached on Monday through Friday, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Huson can be reached on 571-272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM MCCALISTER/  
Examiner, Art Unit 3753

/Stephen M. Hepperle/  
Primary Examiner, Art Unit 3753

WM  
8/11/2008